



CLASS - VIII SCIENCE NOTES NOVEMBER

8. Force and Pressure

I. Assertion and Reasoning Type Questions:

Note: Mark the correct choice as.

OPTION A - Both assertion and reason are true and reason is the correct explanation of assertion.

OPTION B - Both assertion and reason are true but reason is not the correct explanation of assertion.

OPTION C - Assertion is true but reason is false.

OPTION D - Assertion is false but reason is true.

1. Assertion (A): Pushing a school bag or lifting a bucket of water requires force.
Reason (R) : This force is caused by the action of muscles in our body. The force resulting due to the action of muscles is known as the muscular force.

Ans - A

2. Assertion (A): We can drink cold drink from a bottle with help of straw.
Reason (R) : The pressure inside the straw is more than the pressure outside

Ans - B

II. Answer the following Questions:

1. Give two examples each of situations in which you push or pull to change the state of motion of objects.

(i) Push: We close drawer by pushing.

We move a wooden box by pushing.

(ii) Pull: We draw water from a well by pulling the rope.

A horse pulls a cart.

2. Give two examples of situations in which applied force causes a change in the shape of an object.

When we apply force on a rubber band to stretch it and on clay to change its shape.

3. In the following situations identify the agent exerting the force and the object on which it acts. State the effect of the force in each case.

(a) Squeezing a piece of lemon between the fingers to extract its juice.

Agents are fingers, object is lemon, effect of force changes the shape of lemon.

(b) Taking out paste from a toothpaste tube.

Agents are fingers of the person squeezing the tube, object is toothpaste tube and effect of the force can be observed as the paste coming out of the tube (change in shape).

(c) A load suspended from a spring while its other end is on a hook fixed to a wall.

Agent is the load suspended, object is the spring and effort can be seen in the form of elongation of spring on suspension of load (change in shape).

(d) An athlete making a high jump to clear the bar at a certain height.

Agent is muscles of athlete, object is athlete himself and effect of the force changes the state of motion of the athlete.

4. A blacksmith hammers a hot piece of iron while making a tool. How does the force due to hammering affect the piece of iron?

The force due to hammering causes the change in the shape of the iron and iron can be moulded in the shape of the required tool.

5. An inflated balloon was pressed against a wall after it has been rubbed with a piece of synthetic cloth. It was found that the balloon sticks to the wall. What force might be responsible for the attraction between the balloon and the wall?

Electrostatic force.

6. Name the forces acting on a plastic bucket containing water held above ground level in your hand. Discuss why the forces acting on the bucket do not bring a change in its state of motion.

Forces acting on bucket are as follows:

- (i) Muscular force of arms acting upward.
- (ii) Force of gravity acting downward.

Both the forces do not bring any change in the state of motion because both of them are acting in equal and opposite directions and thus they cancel each other's effect.

7. A rocket has been fired upwards to launch a satellite in its orbit. Name the two forces acting on the rocket immediately after leaving the launching pad.

The forces that act when a rocket leaves launching pad are as follows:

- (i) Gravitational force of the earth (downward)
- (ii) Frictional force of air (in opposite direction)

9. Friction

III. Assertion and Reasoning Type Questions:

Note: Mark the correct choice as.

OPTION A - Both assertion and reason are true and reason is the correct explanation of assertion.

OPTION B - Both assertion and reason are true but reason is not the correct explanation of assertion.

OPTION C - Assertion is true but reason is false.

OPTION D - Assertion is false but reason is true.

1. Assertion (A): We do not slip when we walk on wet floor.

Reason (R): The water forms thin layer between the feet and the floor and decreases the friction.

Ans - D

2. Assertion (A): Friction depends on the weight of the object

Reason (R): A heavier object exerts a greater frictional force.

Ans - A

IV. Answer the following Questions:

1. **Suppose your writing desk is tilted a little. A book kept on it starts sliding down. Show the direction of frictional force acting on it.**

Frictional force will act upward, i.e., the direction opposite to that of sliding book.

2. **You spill a bucket of soapy water on a marble floor accidentally. Would it make it easier or more difficult for you to walk on the floor? Why?**

The layer of soap makes the floor smooth due to which the friction is reduced. This makes the floor slippery and the foot cannot make a proper grip on the floor. Therefore it is difficult to walk on a soapy floor. We may slip on the floor.

3. **Explain why sportsmen use shoes with spikes.**

Sportsmen use shoes with spikes to increase the friction between shoes and the surface. So the shoes with spikes do not slip while the sportsmen run and play.

4. **Iqbal has to push a lighter box and Seema has to push a similar heavier box on the same floor. Who will have to apply a larger force and why?**

A heavy object produces more friction as it is pressed hard against the opposite surface. So Seema will have to apply a larger force.

5. Explain why sliding friction is less than static friction.

The sliding friction is less than static friction because the sliding object gets less time to interlock into the contact points on the floor. So it is somewhat easier to move an object already in motion than to get it started.

6. Give examples to show that friction is both a friend and a foe.

Some points are given below which show that friction is both a friend and a foe:

1. Friction as a friend:

- It allows us to grip and catch any object.
- It helps us to walk comfortably on the floor.
- It helps to minimise the speed or to stop any moving object.
- It helps us to write.

2. Friction as a foe:

- It causes wear and tears in objects.
- It causes damage to the parts of machines and tools which further require money to get them repaired.
- It reduces the speed of moving objects, so more force is required.
- It produces hurdles in moving any object freely.

7. Explain why objects moving in fluids must have special shapes.

The objects moving in fluids must have a special shape to overcome the fluid friction acting on them. Efforts are therefore made to minimise the friction, so objects are given special shape having pointed fronts with little broader middle portion which gets tapered at the back called streamlined.